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XLVII.—*Descriptions and Records of Bees.*—LXVII.
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Paracolletes versicolor (Smith, 1853).

Mt. Wellington, Tasmania, 1300–2300 ft., Jan. 15–Feb. 6, 1913, 1 ♀, 2 ♂ (R. E. Turner). The female was described by Smith; the male is *P. spatulatus*, Ckll., 1905. In the same locality, at about the same time, Mr. Turner took a male *P. providellus bacchalis*, Ckll., var. *a.* Both species were described from the mainland of Australia.

Paracolletes pachyodontus, sp. n.

♂.—Length 8–9 mm.

Black, with the mandibles red (except at extreme base), and the abdomen with approximately the lateral thirds of first three segments, as well as apical bands on the first four, deep chestnut-red; hair of head and thorax long and dull white, abundant on face, but vertex, mesothorax (except anteriorly), and most of scutellum with dark fuscous hair; a little fuscous hair below tegulae; clypeus with sparse strong punctures; supra-clypeal area prominent, smooth, and shining; antennae short and thick, like those of a female, the flagellum red beneath; vertex strongly punctured; mesothorax finely and densely punctured, but glistening; postsentellum with a thick short median tooth; tegulae piecous, punctured. Wings with the apical margin broadly dusky, stigma and nervures piecous; second s.m. small,

receiving first r. n. a little beyond middle. Legs black, with thin white hair. Abdomen shining, but the surface finely rugoso-punctate, first suture impressed; thin white hair on dorsal segments, but no bands; apical plate red, rounded.

Hab. Yallingup, S.W. Australia, Nov. 1913, three (*R. E. Turner*). British Museum.

A distinct species, somewhat related to *P. rhodopus*, Ckll., but recognizable at once by the colours, short antennæ, &c.

Paracolletes viridicinctus, Cockerell, 1905.

Eaglehawk Neck, Tasmania, Feb. 12–March 3, 1913 (*R. E. Turner*).

Paracolletes obscurus (Smith, 1853).

Mt. Wellington, Tasmania, 1300–2300 ft., Jan. 15–Feb. 6, 1913, three (*R. E. Turner*).

Nomia submærens, Cockerell, 1914.

Eaglehawk Neck, Tasmania, Feb. 12–Mar. 3, 1913 (*R. E. Turner*).

Euryglossa latissima, Cockerell, 1914.

This was described from the female, but three males are now before me, with the same data (Eaglehawk Neck, Tasmania; *Turner*). The male is somewhat smaller, and has the abdomen piceous, rufous at extreme apex. Otherwise there is no conspicuous difference, except that the antennæ are longer, and there is more long, loose, white hair about the face and mouth. The dark abdomen makes the male appear superficially like a distinct species.

Megachile tarsatula, sp. n.

♂.—Length about 6 mm.

Black, including the mandibles and long slender antennæ, but all the tarsi bright ferruginous; anterior tarsi simple, and coxæ with small short spines; head large and round, face with pale ochreous hair; clypeus with large punctures, with shining surface between, on upper part, but lower part with dense minute punctures; supra-clypeal area very densely punctured; vertex with strong large punctures, and thin pale ochreous hair; mesothorax and scutellum finely and closely punctured (in complete contrast with vertex), the

surface between the punctures shining; thorax above with very thin and short pale ochreous hair, and no distinct sutural bands; area of metathorax granular at base and sides; tegulae rufo-piceous. Wings hyaline, dusky apically, stigma large, dark ferruginous. Legs with short pale hair. Abdomen finely and closely punctured, the bases of the segments deeply impressed; first segment with lateral pale apical hair-patches, third and fourth with conspicuous basal bands of glittering scale-like pubescence, fifth with the basal half thinly covered with pale hair, and sixth with even more, the hair pale ochreous-tinted and glittering; hind margins of second and following segments very narrowly fuscous; sixth segment vertical, the keel feeble, not or barely depressed in middle, a short tooth on each side of apical margin of segment.

Hab. Cuernos Mts., Negros, Philippine Is. (*Baker*, 3147, =type); Dapitan, Mindanao (*Baker*, 3139).

This minute species recalls some of the Australian forms, but does not resemble them in detail. I do not know any near relative. The small size and red tarsi readily distinguish it in the Philippine fauna.

Megachile indianorum, Cockerell, variety *a*.

A male from Jacksonville, Texas, at *Helenium tenuifolium*, Aug. 11, 1906 (*Bishopp*), represents a new variety with black legs. It differs in the pubescence and the colour of legs from Cresson's description of *M. deflexa*, but it is not improbable that both this insect and true *indianorum* represent varieties or races of *deflexa*. It also seems possible that *M. megagyna*, Cockerell, is the female of the present variety, although it has darker wings, and the strong coarse sculpture of the clypeus is entirely different. A female *M. megagyna* was taken at Ardmore, Okla, July 11 (*Jones*).

Megachile anica, Cresson.

The male closely resembles that of *M. integra*, Cresson, but is certainly distinct, being smaller, with no band in the suture between scutellum and metathorax, while the apex of the abdomen beneath presents a sharp median spine, wanting in *integra*. The curious claviform hairs beneath the white fringe on anterior tarsus are characteristic. The species, however, appears to be remarkably variable. One from Cotulla, Texas, on *Verbesina encelioides*, April 27, 1906 (*F. C. Pratt*), is scarcely 8.5 mm. long, and has the hair of

head and thorax above strongly ochreous. Another from Cotulla, at *Opuntia*, April 16, 1906 (*Pratt*), is of normal size, with the normal pallid hair. One from Victoria, Texas, April 27, 1907 (*J. D. Mitchell*), is of normal appearance, but differs from the Cotulla form by having the short stiff brush of hair near the base of the anterior basitarsus anteriorly dark fuscous instead of light orange.

The female of *M. amica* has remained unknown, but I recognized it with some confidence in specimens from Cotulla, at *Monarda punctata*, May 12, 1906 (*J. C. Crawford*); San Diego, Texas, April 23 (*Mitchell*); and Corpus Christi, Texas, at *Anogra pallida*, April 12, 1906 (*Pratt*). This female looks very much like *M. brevis*, but is especially to be recognized by the very long hairs standing out from the posterior border of the middle tarsus. The ventral scopa is white, black on last segment; the last dorsal segment is somewhat concave in profile, and has coarse, but rather short, erect, black hair. The hair on the head and thorax above is white or slightly greyish, sometimes (San Diego specimen) largely fuscous on vertex. The clypeus is normal and densely punctured. The reference of this female to *amica* is strengthened by the occurrence of similar characters in the middle tarsi and scopa of *M. soledadensis*, Cockerell.

Megachile comata, Cresson.

Described from the male, but two females are before me, from Albuquerque, New Mexico, Aug. 1894 (*Snow*). The female is large and robust, about 16 mm. long; ventral scopa pale yellowish, becoming white basally; last dorsal segment with fine, erect, wholly pale hair; when abdomen is seen from above, no black hair projects at sides; hind basitarsus very broad; mandibles quadridentate. There is no light hair-band in the suture anteriorly bounding scutellum.

Megachile caudentula, sp. n.

♂.—Length a little over 7 mm.

Black, including the very long antennæ, mandibles, tegulæ, and legs; wings strongly smoky, nervures and stigma rufo-piceous; eyes dark brown; face with short ochreous hair, not hiding surface, vertex with short sparse black hair, lower part of cheeks with long abundant pure white hair; clypeus extremely densely punctured, with a slender smooth median line; front dull, rugoso-punctate; vertex with very large well-separated punctures; mesothorax

and scutellum shining, with very strong distinct punctures and thin short black hair; pale hair-band in scutello-mesothoracic suture feeble or absent; postscutellum with rather long rufo-fuscous hair; area of metathorax shining; tubercles fringed with dense pale ochreous hair; pleura strongly and closely punctured, and with very thin pale hair. Legs ordinary, anterior tarsi simple and coxæ without spines; claws red with black tips. Abdomen short, the three segments closely and finely punctured, the fourth much smoother; first three with red marginal bands, evanescent in middle, on first reduced to lateral patches, fourth (except part of disc) and fifth covered with red pubescence, with scattered black hairs intermixed, the red is a deep orange-ferruginous; sixth segment retracted, with red hair at sides, its keel not at all prominent, feebly bilobed at apex; no apical (subventral) teeth or spines. Spurs of hind tibiæ cream-colour.

Hab. Dapitan, Mindanao (*Baker*, 3140, 3144).

A distinct species, recalling by the colour of the abdomen *M. doanei*, Ckll., from Tahiti, but very different structurally.

Megachile hookeri, sp. n.

♀.—Length almost 15 mm.

Robust, black, including mandibles, tarsi, and antennæ. Wings hyaline, faintly dusky, with dark fuscous nervures; pubescence greyish white, long and black on vertex, on middle of mesothorax mixed with black, only a very few dark hairs on scutellum. Abdomen with pale hair on first two segments and basal part of third, but beyond that the hair is coarse, erect, and black, except that segments 3 to 5 have conspicuous entire white hair-bands, and the sixth, except basally, has a fine pale pruinose pubescence; sixth dorsal segment in outline concave, with the black bristles very large and conspicuous; ventral scopa entirely clear white. Mandibles broad, quadridentate, with long golden hairs arising from beneath the basal half; white hair of face and front abundant; clypeus minutely rugoso-punctate, but largely concealed by hair, its lower margin straight and shining; vertex with small punctures on each side of the ocelli, but more posteriorly with large punctures; mesothorax and scutellum closely punctured, disc of mesothorax more sparsely punctured, showing the shining surface; no white lines of hair on mesothorax and sutural band; b. n. falling short of t.-m.; anterior tarsi with a fringe of long

white hairs behind; small joints of middle tarsi moderately thickened; posterior basitarsi only moderately broadened.

Hab. Leli, Utah, Sept. 9, 1905 (*W. A. Hooker*). U.S. National Museum.

Superficially just like *M. comata*, Cress. (♀ from Albuquerque, New Mexico; *Snow*), but easily distinguished by the coarse black hair on apical part of abdomen above. In this feature it resembles *M. manifesta*, Cress., which is much smaller and otherwise different.

Megachile innupta, sp. n.

♀.—Length 12 mm.

Black, robust, with rather abundant silky greyish-white hair, forming entire and conspicuous bands on abdominal segments 3 to 5; clypeus with thin inconspicuous hair; sides of vertex with a small amount of black hair; hair of thorax above entirely clear white; first two abdominal segments with copious white hair, third with thin pale hair in transverse sulcus, and short black hair between that and the apical band, fourth and fifth (except the bands) with short black hair, the fourth with a little pale basally, sixth with thin and rather short, erect, pale hair; ventral scopa white basally, but clear ferruginous on the last two segments.

Mandibles broad, quadridentate, with golden hairs from the lower border; clypeus strongly and densely punctured, with a thick, shining, essentially straight lower margin, but the sides of the margin broadly lobed or extended beyond the level of the central part; antennæ black; sides of vertex with large scattered punctures on a shining ground; mesothorax densely punctured, smooth and shining in the anterior middle; no lines of hair or sutural band; tegulae rufo-piceous. Wings hyaline, faintly dusky, nervures dark rufo-fuscous, b. n. falling short of t.-m.; anterior tarsi very thick, with long glittering white hairs behind; small joints of middle tarsi remarkably thick and short; hind basitarsi much broadened; all the claws with a well-developed basal tooth. Abdomen finely punctured, sixth dorsal segment in profile gently concave, without a distinct lip; when the abdomen is seen from above, there are no conspicuous dark hairs projecting laterally from the apical segments.

Hab. Pueblo, Colorado, Aug. 10, 1907 (*G. M. Hite*).

This looks much like *M. nupta*, Cress., but is easily separated by the lack of a distinct lip on the last dorsal segment, the much more swollen anterior tibiae, and the long hair on anterior tarsi behind. *M. nupta* has still shorter middle tarsi, the basitarsi being shorter. The clypeal

punctures of *nupta* are larger and not so dense. In the same locality, on the same day, Mr. Hite took *M. cleomis*, Ckll., ♀.

Megachile abluta subrixator, subsp. n.

♀.—Length 9 mm.

Agrees with the smaller form of *M. rixator*, Ckll., except that the clypeus has very large strong punctures, distinctly separated near the middle, and, while the median line is smooth, there is no keel. The end of the abdomen also differs, in that the last dorsal segment in lateral profile shows no evident erect hair and the last ventral segment has the hair entirely black. Ventral scopa very bright ferruginous, but white at base and black at apex; antennæ black; hair of head above reddish fuscous, of thorax above brownish ochraceous; conspicuous pale sutural bands in front and behind scutellum. Easily known from *M. abluta*, Ckll., by the much larger and less dense punctures of clypeus and the bright red ventral scopa.

Hab. Iligan, Mindanao, Philippine Is. (*Baker*, 3148 = type); Dapitan, Mindanao (*Baker*, 3142).

Males from Dapitan do not materially differ from *M. abluta*. The whole face is densely covered with pale golden hair. *M. abluta* and *M. rixator* were described from Formosa. Another small Philippine species (Luzon and Mindanao; *Baker*), named in manuscript by Friese, is very close to the Formosan *M. tranquilla*, Ckll.

Megachile bishoppi, sp. n. (*townsendiana*, subsp. ?).

♂.—Length about 10.5 mm.

Hair of head and thorax above pale yellowish; anterior coxæ spined; anterior tarsi simple. A species of the group of *M. parallela*, Sm., close to *M. townsendiana*, Ckll. (having keel of sixth abdominal segment curved downward), from which it differs thus: hair of face creamy (instead of pure white); thorax above very hairy, with only a very indistinct band in scutello-mesothoracic suture; keel of sixth abdominal segment smaller, less deeply emarginate, with the lobes on each side of the emargination much smaller.

Hab. Paris, Texas, May 24, 1904, two males (*F. C. Bishopp*). U.S. National Museum.

Megachile mendica coquilletti, subsp. n.

♂.—Length a little over 11 mm.

Pubescence pale greenish ochraceous; small joints of anterior tarsi light ferruginous; hair fringing anterior tarsi

behind very long ; no fuscous hair on thorax above ; keel of sixth abdominal segment jagged on each side of the rounded emargination ; apical teeth of abdomen five, the median one well developed, the lateral ones small, a trifle nearer to the sublateral than the sublateral are to each other. The abdomen has conspicuous dark hair on segments 3 to 5. The scutello-mesothoracic suture is wholly without a light band.

Hab. Los Angeles County, California (*Coquillett*). U.S. National Museum.

I describe this as a subspecies of *M. mendica*, but it is equally close to *M. brevis*, and until the female is known we cannot be sure which it should be associated with. Males collected by Snow in Arizona, which I consider to represent a variety of *brevis*, resemble *coquilletti* in their rather large size and ochreous hair, but they have dark anterior tarsi, and the keel of sixth segment only faintly crenulate on each side of the emargination.

Megachile penicillata, sp. n.

♀.—Long and narrow, with the general form and appearance of *M. occidentalis*.

Black, including the tarsi, mandibles, and antennæ ; wings strongly fuscous. Head large, rounded ; eyes prominent, chocolate-colour ; mandibles quadridentate (quinquedentate in *occidentalis*) ; labrum broad at apex, with two pencils of red hair directed forwards (vertically to plane of labrum) ; clypeus strongly subconfluently punctured, with a slender smooth median line, lower margin very broadly but shallowly excavated, or it could be described as straight, with a broad low lobe at each side ; sides of face, and region above and between antennæ, with copious greyish-white hair ; hair of clypeus extremely thin, but not fuscous ; region behind ocelli large, with strong quite close punctures ; mesothorax strongly and extremely densely punctured, with very short and sparse pale hair, but a pair of oblique bars of dense white hair (as in *occidentalis*, but not so large) in front, a light band along lateral margins, and a thin one in scutello-mesothoracic suture ; tubercles densely covered with creamy-white hair ; tegulæ rufo-piceous. Legs with white hair, pale yellowish on inner side of tarsi ; hind basitarsi very slender. Abdomen parallel-sided, strongly but not densely punctured, with narrow white hair-bands on the first four segments, that on first practically reduced to large triangular lateral patches ; sixth segment broadly hoary at

base, and without erect hairs; ventral scopa short and compact, pure white, black on last segment.

Hab. Trinity, Texas, Aug. 30, 1906, two (*F. C. Bishop*).
U.S. National Museum.

M. occidentalis, Fox, has the mesothorax much more finely punctured, and the last dorsal segment with a deep transverse subapical groove, represented only by a transverse depression in *penicillata*.

Bombus rufocinctus, var. *castoris*, v. n.

Bombus rufocinctus, Cress., var. 6, Franklin, Trans. Amer. Ent. Soc. xxxviii. p. 443.

♂.—Abdomen with yellowish-fulvous hair on first two dorsal segments, black on all the others.

Hab. Beaver Creek, Montana, 6300 ft., Aug. 1913 (*S. J. Hunter*). The abdomen is coloured as in the male of *B. vagans*, Smith. There is much yellow hair on the head above, and a large yellow patch in the middle of the face.

XLVIII.—*Notes on Fossorial Hymenoptera*.—XVI.

By ROWLAND E. TURNER, F.Z.S., F.E.S.

On the Thynnidæ, Scoliidæ, and Crabronidæ of Tasmania.

THE following list includes all the known species of Thynnidæ, Scoliidæ, and Crabronidæ occurring in Tasmania. I have already published notes on the Mutillidæ of the island (*Ann. & Mag. Nat. Hist.* (8) xiv. pp. 429-450), and hope at a future date to give a list of the Psammocharidæ. I have not included the few species known from the islands in Bass Straits, which are politically part of Tasmania. The fossorial Hymenoptera are not very numerous in Tasmania, and a considerable number are common to Australia and Tasmania, the resemblance to the fauna of the mountainous districts of S.E. Australia being very marked. The absence of the conspicuous coloration of broad orange bands, so characteristic of Australia, is remarkable; I am not aware that this plan of colour occurs among the wasps of Tasmania, except in one or two strong-flying Psammocharidæ which have doubtless found their way across from the mainland. In one case, *Crabro tridentatus*, Sm., which occurs in Victoria, has broad orange bands on the abdomen; the Tasmanian form, *C. tasmanicus*, Sm., has narrow yellow bands, but does not differ appreciably in structure.